Small Business Innovation Research

Infrared Acousto-Optic Tunable Filter (AOTF)

Aurora Associates, Inc.

Santa Clara, CA

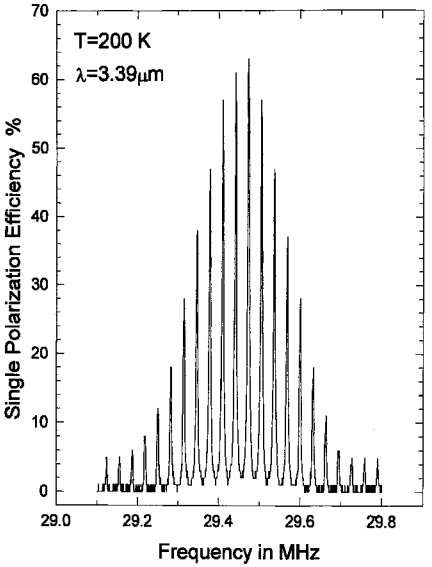
INNOVATION

Broadband low power infrared AOTF operated at cryogenic temperatures provides a practical, rugged spectral agile camera over wide range in the infrared (1 to 5 microns).

ACCOMPLISHMENTS

- First demonstration of low power (<1 watt) IR AOTF operated at cryogenic temperatures.
- Demonstration of broadband IR (BBIR) AOTF over multiple-octave tuning range.
- Developed new AOTF configurations applicable to wavelength division multiplexing (WDM) in fiberoptic communication network.

Acoustically Resonant AOTF Operated at Cryogenic Temperatures



COMMERCIALIZATION

- Developed a series of AOTF-based products for spectrometry applications: Broadband Infrared (BBIR) Tunable Camera Filter (TCF), Portable NIR Spectrometer, and Portable Optical Spectra Analyzer (POSA)
- Awarded a $750K R&D contract from the U.S. Army Research Office to extend the AOTF technology to telecommunication applications

GOVERNMENT SCIENCE/APPLICATIONS

- The rugged broadband infrared AOTF will be applicable to a spectral imager on a Discovery or post-Mars 2001 orbiter.
- The low power cryogenic AOTF extends operation to 5μm PH_3 window for planet observation.
- The patentable results of the new AOTF configuration are applicable to wavelength division multiplexing cross-connects in telecommunication networks.

Goddard Space Flight Center

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